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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/856,150  | 08/03/2001  | Sung Tae Yang        | P66658USO           | 9223             |
| 7590 06/01/2005   |             |                      | EXAMINER            |                  |
| Yoon S. Ham, Esq.<br>Piper Rudnick LLP<br>P.O. Box 9271<br>Reston, VA 20195 |             |                      | PERILLA, JASON M    |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2634                |                  |

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/856,150

Applicant(s)

YANG ET AL.

Examiner

Jason M. Perilla

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 November 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-8 are pending in the instant application.

#### ***Response to Arguments/Amendments***

2. The claim objections set forth in the first office action dated July 22, 2004 have been withdrawn in view of the amendments to the claims.
3. In view of the amendment to the claims and the arguments filed November 22, 2004, the prior art rejections set forth in the first office action have been withdrawn. By the amendment to the claims, the independent claims now provide for an additional limitation including a bit rate of a first code signal being lower than that of a second code signal.

#### ***Drawings***

4. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Objections***

5. Claims 1-8 are objected to because of the following informalities:

Regarding claim 1, in line 3, "encoding input" should be replaced by --encoding an input--, in line 4, "the encoded signal" should be stricken, in line 5, "the output signal" should be replaced by --an output signal--, in lines 8-9, "the output signal" should be replaced by --the respective output signals--, in line 12, "said plurality of" should be replaced by --said pair of--, in line 13, "the output" should be replaced by --its output--, in lines 14-15, "the output signals" should be replaced by --output signals--, in line 21, "the data rate" should be replaced by --a data rate--, in lines 27-28, "a first respective orthogonal code signal" should be replaced by --respective first orthogonal code signals--, in line 30, "the bit rate of the first orthogonal code signal" should be replaced by --a bit rate of the respective first orthogonal code signals--, and, in line 33, "of the subchannel modulators" should be replaced by --of subchannel modulators--.

Regarding claim 2, in line 3, "of input signal" should be replaced by --of the summed signal--.

Regarding claim 3, in lines 2-3, "the data rate of the first orthogonal code signal" should be replaced by --the bit rate of the respective first orthogonal code signals--.

Regarding claim 4, in line 4, "subchannel signal" should be replaced by --subchannel signals--.

Regarding claim 5, in line 3, "the subchannel data" should be replaced by --subchannel data--.

Regarding claim 6, in line 8, "a plurality" should be replaced by --the plurality--, in lines 8-9, "the encoded signals by a first respective orthogonal code signal" should be replaced by --the encoded input signals by respective first orthogonal code signals--, in

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line 16, "the bit rate" should be replaced by --a bit rate--, in line 17, "the first orthogonal code signal" should be replaced by --the respective first orthogonal code signals--, in line 20, "the channelized signal" should be replaced by --the resultant channelized signal--, in line 24, "the power level" should be replaced by --its power level--, and, in line 24, "an radio" should be replaced by --a radio--.

Regarding claim 7, in line 2, "the data rate of the input signal" should be replaced by --a data rate of the plurality of input signals--, in lines 2-3, "the data rate" should be replaced by --a data rate--, and, in line 4, "the number of said plurality of input data" should be replaced by --a number of said plurality of input signals--.

Regarding claim 8, in line 2, "the bit rate of the first orthogonal code signal" should be replaced by --a bit rate of the respective first orthogonal code signals--, and, in line 3, "the data rate" should be replaced by --a data rate--.

Appropriate correction is required.

***Allowable Subject Matter***

6. Claims 1-8 are indicated to contain allowable subject matter.
7. The following is a statement of reasons for the indication of allowable subject matter:

Claims 1-8 are indicated to contain allowable subject matter over the prior art of record because the prior art of record does not disclose or obviate all of the limitations of the independent claims. With the amendment to the claims of November 22, 2004, the claims provide for the additional limitation of the first code signal having a lower bit rate than the second code signal. The exemplary prior art of record Gitlin et al (US

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5442625) does not disclose this limitation. Further, because the disclosure of Gitlin et al contains a fundamental difference in its operation of expanding a CDMA system, the additional limitation is not an obvious one. The prior art reference Gitlin et al creates subchannels which are Walsh code modulated (fig. 2, refs. 203, 223, and 243) and orthogonal code spread (fig. 2, refs. 204, 224, 244) before they are combined (fig. 2, ref. 254) and PN code spread (fig. 2, refs. 205, 206). However, in the invention of the instant application the subchannels are orthogonal spread (fig. 2, refs. 220-1 thru 220-2) before they are combined (fig. 2, ref. 230), Walsh code modulated (fig. 2, ref. 230), and PN code spread (fig. 2, ref. 130). Therefore, the bit or code rate of the first orthogonal spread code is lower than that of the second Walsh orthogonal code because it is applied to a subchannel rather than the combined signal.

### ***Conclusion***

8. This application is in condition for allowance except for the following formal matters:

The claim objections above.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art of record not relied upon above is cited to further show the state of the art with respect to CDMA transmitters.

U.S. Pat. No. 5235614 to Bruckert et al.

U.S. Pat. No. 6385187 to Ahn et al.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jason M. Perilla  
May 23, 2005

jmp



CHIEH M. FAN  
PRIMARY EXAMINER